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IN THE

Supreme Court of the United States

October Term, 1933, No. 611

ELECTRIC CABLE JOINT COMPANY,
Plaintiff-Petitioner,

against

BROOKLYN EDISON COMPANY, INC.,
Defendant-Respondent.

BRIEF FOR RESPONDENT

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This cause is here on a writ of certiorari to the Circuit Court of Appeals for the Second Circuit, which affirmed (R. p. 763; 66 F. (2d) 739) a decree of the District Court dismissing the complaint based on alleged infringement of a patent.

Statement

The patent in suit (R. p. 254) was issued to Torchio in 1916, and expired more than a year ago.

The patent having expired, no injunction can issue, even if this Court should hold the patent valid and infringed.

Also, no basis has been laid for a decree for an accounting even if validity and infringement were found to exist. This is not even mentioned in petitioner's brief.

The patent relates to a so-called device for preventing current leakage at a joint in an electric line conductor or cable. Claim 4 of the patent, the only one in issue, covers a joint construction having a combination comprising (1) an ordinary lead sheathed, wrapped, oil insulated electric cable, with the sheath sufficiently removed to expose the joint, and the copper conductors joined, or having a joint; (2) a body of pervious insulating material wrapped about or inclosing the joint; (3) an ordinary lead sleeve of a diameter greater than the body of pervious insulating material, inclosing the joint and united at its ends to the cable sheath; (4) a receptacle communicating with the interior of the sleeve, and (5) an insulating oil or other liquid, in the receptacle and sleeve, fluid at low temperature, and adapted to permeate the body of pervious material in the sleeve.

It was conceded on the trial that Torchio was not the first to provide a cable, wrapped and insulated or impregnated with oil; nor the first to make joints in cables; nor the first to make or use pervious wrappings on joints; nor the first to show a sleeve enclosing the joints, larger than the sheath of the cable, hermetically closed and connected to the metal sheath of the cable; nor the first to use some kind of insulating material in the sleeve surrounding the joint (R. pp. 64-5).

The only elements asserted by petitioner to be new in the claimed construction or combination are the receptacle and the insulating oil or liquid, fluid at low temperature.

It is not asserted, however, that Torchio discovered that oil is an electrical insulating liquid (R. p. 64).

In addition to finding that the respondent's receptacle or reservoir is different in construction, character and use from that of the patent in suit (R. p. 748), both the District Court and the Circuit Court of Appeals in the Second Circuit held claim 4 of the patent invalid in view of the prior art (R. pp. 748, 772).

In the earlier case of *Metropolitan Device Corp.* v. *Cleveland Electric Illuminating Company* (36 F. (2d) 477), with which the respondent was in no way connected, the District Court in Ohio held claims 3 and 4 of the patent invalid, but the Circuit Court of Appeals for the Sixth Circuit held those claims valid, and reversed the decree of the District Court. In that case there was no contention by plaintiff that the receptacle of claim 4, or an outside reservoir, in any way distinguished the construction or combination covered by claim 4, or rendered it patentable. Neither the District Court nor the Circuit Court of Appeals, in the Sixth Circuit, discussed or considered the reservoir, or passed upon the question of its effect as adding anything patentable to the construction or combination. The Circuit Court of Appeals, in the Sixth Circuit, concluded, on the evidence there presented, that Torchio had substituted a liquid insulating compound for a compound not soft enough to flow; that this was new with Torchio, and was "somewhat beyond the skill of an expert and amounted to patentable invention," and that the patent was there infringed by the use of a joint insulating compound "normally of the consistency of vaseline or jelly." (36 F. (2d) 477, 479-80).

The record in the present case, however, shows a very

different situation completely negativing the validity of the conclusions reached in the Sixth Circuit.

The District Court and the Circuit Court of Appeals in the Second Circuit, in the present case, found that the use of oil or of an insulating liquid, fluid at low temperature, in the joint combination covered by claim 4, had been disclosed in printed publications, and was known before the alleged discovery by Torchio. It was also found and held that the reservoir or receptacle communicating with the interior of the sleeve had no patentable merit; did not render the claim, otherwise invalid, patentable; was foreshadowed by a prior patent (R. p. 770); and that the reservoir used by respondent is in construction, character and use substantially different from the receptacle of the Torchio patent, and it is physically impossible to employ or use that receptacle as a substitute for respondent's reservoir (R. p. 747).

It was also found that the evidence supporting the findings of disclosure of prior use of oil or an insulating liquid, fluid at low temperature, in such a combination, was not in the record in the case in the Sixth Circuit: "nor did said record contain any equivalent or like evidence upon the basis of which like findings could there have been made" (R. pp. 747, 737, 767).

The prior patents and publications:

We shall describe here only those patents and publications which are in the Record in the present case and were *not* before the Court of Appeals for the Sixth Circuit.

As early as 1894 there was disclosed an electric joint box (although of a mechanically different form from those

here involved) in which, as stated in the *Gejpel patent* of that year (R. p. 605):

> "After the joint is thus made the box may be filled with a suitable insulating material, as for example, *oil*, wax, bitumen, or by a combination of any of these *according to the nature of the insulation used for the conductor itself*. For example, with a vulcanised or pure rubber insulated conductor oil would be unsuitable as it dissolves rubber, therefore I should prefer to use wax or other material. *With paper or jute insulated conductors oil may be used.*"

And

> "With paper, jute, hemp, flax, cotton or other suitable insulating material, the joints * * * are best surrounded by oil."

Oil has long been recognized as an excellent insulating medium. It was used by defendant's witness, Dr. Whitehead, as early as 1891, and has frequently been used in transformers, as is illustrated by the *Lemp patent* 534,802 of 1895 (p. 614). As stated on page 612, the conductors forming the primary are insulated by asbestos, "loosely wound to allow the asbestos to take up the oil." The space containing the primary (p. 612)

> "is filled with oil, connection with a *reservoir* or supply pipe being maintained *to allow for expansion under increase of temperature*"

just as in defendant's joints when so called "breathing" of the cable occurs forcing oil into the joint box. In the *Lemp patent* the reservoir is marked J (p. 614).

In 1907 *de Gelder* described the "Cable System of the municipality of Amsterdam." The article deals with "the cable system for light and power, in other words, the three-

phase cable net" (p. 618). The cables, some of which were designed as "high tension cables for 3,000 volts" (p. 619), were wound with strips of impregnated paper (p. 618), this paper insulation being impregnated "*with a rather thin liquid, oily, and a not too resinous mass*" (p. 620). As to the "joints or solid connections of the cables"—"where *lead* cables are concerned cast iron junction boxes are used for this purpose in most cases" (p. 620), but, as an alternative to this form of joint box, *a lead sleeve* is used (pp. 623-4), the process of making the joint being described as follows:

> "The two cable ends are carefully freed from the steel sheath, the lead sheath, and the insulation for a specified length; no more is cut off from the insulation than is absolutely necessary. Then, a cylindrical tube, cast in one piece, with a length of about 40 c. m."—about 15½ inches—"is shoved over one of the cable ends, and the process of connecting the copper conductors is started. * * * Subsequently, the joined conductors are wound with linen tape, with a certain overlap. This linen tape is first boiled, in form of small rolls, in hot oil for at least one hour, so that it is completely saturated with oil and free from moisture. * * *
>
> "Thereupon, the insulated conductors are pressed against each other and a common insulation, also consisting of 8 layers of tape and 6 layers of mica, is arranged around each group of three conductors. * * *
>
> "Finally, the difficult job of soldering the lead socket must be done: The lead cylinder is pushed up until it is just above the joint; then, the ends are beaten down until they fit exactly on the lead sheath which first has been made bright by sand papering."

Then there is described the familiar process of uniting the

ends of the lead joint sleeve to the lead sheath of the cable by a plumber's "wiped joint." Then (p. 626):

> "After the soldering of the lead socket has been completed, a small square hole is cut in the top of the lead socket, and hot insulatjon mass is poured into the socket. *For this purpose, the same mass, or rather the same oil, is used as for impregnating the cable.* It is a kind of resin oil. After the socket has been filled, the hole is closed again by soldering."

The oil that was used for impregnating the cable was, it will be recalled, "a rather thin liquid, oily, and a not too resinous mass" (p. 620). *That* is what is used to fill the joint sleeve.

The last quotation states what is done "after the socket has been filled" etc. The filling process had already been described (p. 623). Then (p. 628-9):

> "The Amsterdam high tension cables are supplied by a British firm, and the other cables are from a German manufacturer. Both types of cables are paper cables, but the impregnating mass is a very different composition. In the British cables, it is *a rather thin resinous oil* at 15° C"—59° Fahrenheit—"while in the German cables, on the contrary it is a thicker mass.'

The author, de Gelder, prefers the thin oil used in the British cables (p. 629).

Also de Gelder realized that cables "breathe," as it is expressed in this case. "Breathing" is merely the result of the inevitable changes of temperature due to the passage of more or less current in the cable conductors; as the cable "is heated, it tends to squeeze the oil out, and as it cools it

tends to suck oil in; and that is the phenomenon known as breathing" (Petitioner's witness, p. 58). De Gelder, in his publication of 1907 states (p. 629-630):

> "In our opinion, the flowing of the mass from the junction boxes, caused by too intense heating, is more dangerous. In fact, if the mass is *pressed out* because of too strong heating, it is highly probable that, when *contraction* takes place, water will be sucked in, even though the junction box may be well sealed.
>
> However, according to our observations the mass will not flow from correctly assembled junction boxes" (that is, will not be "pressed out" of those boxes by expansion of the oil in the cable) "such as those used by the Municipal Electricity Works, until the temperature of the cable has become 90° C"—190 Fahrenheit—"which temperature doubtlessly will not be permitted to occur, for other reasons!"

That is: 190 F. is too high for a cable; a cable when loaded will not normally run above 150 -160 (Petitioner's witness, p. 48).

The last two pages of the de Gelder article (p. 630-1) speak of the downward shifting of the oil in an elevated end of a cable, and the consequent drying out of the impregnation of the insulation. This is what was observed, and dealt with, on the lines of the *Consolidated Gas, Electric Light and Power Company in Baltimore* at least as early as 1911 and continuing to the present time. The installation there is of interest from several points of view.

The cables used in Baltimore were three-conductor cables, each conductor being paper wrapped, the several conductors being separated by a jute filling, and the whole being

covered with a lead sheath. The cables carried a current of 13,200 volts and were drawn through underground ducts (p. 82). This voltage is within petitioner's definition of a high voltage cable (p. 64). At the power stations, many of the cables entering the power houses from the ducts terminated, in the power houses, some 40 to 60 feet above the level of the ducts, where they entered "pot heads," which were enlarged containers of insulating fluid (pp. 82-84; 497). It was the practice at first to fill the pot head with melted paraffin which, of course, solidified on cooling. Trouble was experienced due to the cables burning out somewhere in these vertical lines, anywhere in the vertical cable in the distance 20 or 30 feet below the pot heads. This was supposed, at first, to be due to mechanical defects, but, as the trouble continued and became worse as heavier loads were placed on these cables, a thorough investigation was made. It was found that the oil had drained out of the paper insulation in the vertical portions of the cables leaving the paper dry and thus destroying the efficiency of the insulation (p. 84-5).

Finding that failures occurred in the cables due to the drying out of the oil in the paper insulation in the cable, the Consolidated engineers decided to remove the paraffin and to fill the pot heads with oil "which would flow" (p. 85, Qs. 65-68).

In May, 1911, an officer of the Consolidated Company wrote to the supplier of oil that he wanted the oil for use in the pot heads or "end bells" at the ends of the vertical sections of cables in which the paper insulation had become dry, resulting in breakdowns, and (p. 503):

> "We have thought to remove the heavy compound that now fills our end bells, in cases above

mentioned, and fill such end bells with the same saturating compound as is used in the make up of these cables, believing that the heat and gravity will in time cause this compound to go down into the dry section of cables and it is our purpose to keep these end bells filled until the cables in question have taken all of the saturating compound that they would take."

The oil was received in June, 1911. The paraffin was then taken out of the numerous pot heads or end bells that were on elevated cable ends in the various power houses, and they were filled with this oil (p. 87), this oil being so fluid that it was drawn from a spigot, or tap, in a barrel (p. 110). On the first few fillings of a pot head the oil rapidly disappeared into the cable; subsequent inspections showed that the oil was taken up at a slower rate, so the pot heads did not have to be filled so often (p. 87). Each pot head held about 2 gallons of the oil (p. 88).

The use of that oil has continued; and it is still being used (p. 90).

The oil penetrated the wrappings in the cables and kept them impregnated and passed for very considerable distances through not only the vertical portions of the cables but also through the horizontal portions; for the horizontal joint sleeves, as much as 1200 feet away (pp. 90-1) were found to have become filled with this oil.

The experience in Baltimore in 1911 taught still another thing to those operating the system (which de Gelder had disclosed, see p. 8, *supra*, and which still others have disclosed), and that is that a cable 'breathes," as it has been expressed.

It was, at first, the practice to fill the pot heads full. It was then found that, when the cable was loaded and became hot, the pot heads overflowed. This meant, to those having charge of the matter, that the cable in heating up had caused oil to be driven out of the cable (pp. 69-70, 114).

Vernier deals comprehensively with the whole matter of joints, and the oil to be used, in an article by him published in the Journal of the Institution of Electrical Engineers in 1911 (p. 640). This article appeared not only in this well-known Journal, but was summarized in The Electrician of March 10, 1911 (p. 719); and Vernier's teachings of "a viscous compound which never sets" are referred to, in connection with his name, in Pender's American Handbook for Electrical Engineers (p. 247), which petitioner's witness referred to, in the present case, as "a standard work of authority" on these subjects (p. 231).

Vernier, in his paper, is dealing with high-tension transmission cables carrying up to 20,000 volts (p. 642, near bottom).

He points out (p. 643) that such cables are usually laid on one or another of the following systems, namely, (1) "*drawn into pipes or ducts,*" (2) laid on the solid system, or (3) laid direct in the ground in which case the cable is wound with steel tapes or wire covering. He then, on the same page, describes the "drawing-in system," pointing out that the cables are drawn in through earthenware or cast iron pipes or fibre conduits, leading into manholes (as illustrated on page 644) where the joints occur. Of course, the cable necessarily is made in comparatively short lengths and the ends of one length of cable must be electrically connected, or jointed, to the adjoining lengths of cable.

Vernier then continues (p. 651) with a new heading—"The Jointing of E. H. T. Cables"; the letters "E. H. T." meaning Extra High Tension (p. 200). Under this heading, applicable to any and every system of laying cables, Vernier at once says (p. 651) that "the satisfactory jointing of cables is the most important operation in connection with cable laying" and, therefore, he goes into this matter exhaustively.

He first describes how the conductors in the cables should be electrically connected at the joint, and then takes up (p. 653) the second point for consideration, namely, the insulating of the joints.

Figs. 12 and 13 (p. 654) "show the two representative types of joints generally used for all working pressures up to 20,000 volts" (p. 653). So Vernier is dealing with high voltage power cables, as defined by petitioner's witness (p. 53).

As shown by the cross-sections in the drawings (p. 654) *the cable* is a three conductor cable (as in the patent in suit and in respondent's practice), each conductor being separately insulated by "ordinary paper insulation" (p. 656) and, in Fig. 12, all three of the conductors thus insulated are wrapped and insulated and then covered by a lead sheath. Then (p. 653):

> "*The insulation of joints* may be provided in either of two methods, first by putting insulation on the conductors themselves, or by spacing them apart and using the filling composition as the sole insulating material."

The wrapped joint form is shown in Fig. 12 (p. 654):

"in which the cores are in contact after each having

been separately insulated by wrapping them up in an insulating tape. White linen tape boiled in resin oil just before using is more generally used, but in some cases tapes impregnated with special compounds at the factory have been used. These latter tapes cannot, however, compare with the former, as all tapes are liable to absorb moisture, and by boiling the tape in oil just at the time it is required all moisture can be extracted with certainty. Insulating tapes boiled in this manner are also saturated with oil, which is squeezed out in the process of wrapping on and fills all crevices between layers."

Vernier realized that the air in voids would ionize, for he says, on page 709, that "with air, ionization no doubt takes place" and he refers to sparking in air gaps (p. 655).

He says (p. 653):

"This, moreover, is an extremely important feature, as in E. H. T. joints *the breakdown pressure is enormously reduced if air is present.*"

Continuing the description of the wrapped joint of Fig. 12, Vernier says (p. 653):

"The three cores, after each being separately insulated, are taped over together by another wrapping of insulating tape over their whole length in order to provide the same thickness of insulation between cores and earth as between the cores themselves."

Then, the conductors having been joined and wrapped with insulating tape as in Fig. 12 and as Vernier says they may be in the specific construction of Fig. 13, they are enclosed in a *lead sleeve*. As Vernier says (p. 658):

"Lead sleeves are almost exclusively used in this

country on E. H. T. cables, and are wiped on to the lead of the cable at each end and at all joints in the sleeve itself."

Then, as to the filling materials for the joint sleeve, Vernier discusses those of a solid nature and contrasts them with light oils and viscous materials as distinguished from those which set or harden.

In discussing this matter of joint filling materials, Vernier begins by saying (pp. 653, 655):

> "High-grade joint-box *compounds* possess very high dielectric strength and withstand higher break down pressures than insulating tapes, but their great disadvantage is the considerable shrinkage which takes place on cooling, and the liability, *if of a solid nature*, for blow holes or air-pockets to form in their mass. The great importance of excluding air from all parts of E. H. T. joints has already been stated, and the two types of joints (Fig. 12 and 13) may now be considered from this point of view."

Then (p. 655), Vernier refers to the fact that some engineers feared that the oil would move from the sleeve and leave the joint dry. Everyone knew that it should not be left dry. But Vernier was convinced that an oil should be used in spite of the prejudice of some engineers. Thus, he immediately says (p. 655):

> "*The author considers it important that a joint insulated in the manner shown in Fig 12 should be filled with an oil* . . . ."

Then he immediately proceeds to point out that the insulating tapes should be kept constantly impregnated, as they may be by the use of an oil, saying:

> "The cores should also be separated at intervals by similar bands of insulating tape, so as to allow the greatest possible freedom of access to the *oil, which will keep the insulating tapes constantly impregnated* and this will be greatly assisted by the constant temperature changes which the cable undergoes under changes of load."

It is to be noted that he here says this impregnation "will be greatly assisted by the constant temperature changes which the cable undergoes under changes of load." Why assisted? What do the changes in temperature do? As the temperature rises the oil is forced out of the cables; as it cools the oil is sucked into the cable again. Thus the oil is under movement back and forth (that is, the cable "breathes," as it has been expressed) and this assists in the constant forcing of oil into the insulating tapes, and filling voids.

Then, coming to the form of joint shown in Fig. 13, Vernier says (p. 655):

> "Considering the second type of joint (Fig. 13), in which the spacing of the conductors by means of insulating separators, together with the filling compound, is relied upon to provide the insulation of the joints; *in cases where* solid joint-box compounds have been used breakdowns have occurred due to shrinkage of the compound taking place in solidification after the joints have been filled. In large joint boxes of this sort the cooling takes place from the outside to the inside, so that the final shrinkage takes place in the center of the mass of compound. The outer layers being already set before the center part of the joint has solidified, the shrinkage tends to produce a vacuum, and if there were no air available a hole would form with a vacuum inside."

Then (p. 655):

> "It has been found, however, that there is always a certain amount of air present in the cores and insulation of the cables running out when the cable is cut" (*that is what has been referred to in this case as the "bleeding" of the cable when cut;* see R. p. 197, Q. 29) "and also being dried out by the heat in soldering the joints."

Then (pp. 774-5), still referring to what happens when "*solid* joint-box compounds have been used" the shrinkage of which produces a vacuum in the center part,

> "The net result of this is that the hole due to shrinkage aways forms at the ends of the cores and draws out air from the cores. This air-pocket causes breakdowns of the joints due to sparking, which takes place from core to core across this air space. By insulating the cores separately with insulating tapes before the joint compound is run in, this *drawing out of air* from the cores can be avoided, and breakdowns from this cause prevented. The objection to having oil-impregnated tapes surrounded by a *solid compound which does not keep the tapes impregnated* still exists, however. * * *"

That is, the wrapping at the joint may minimize the defects resulting from using "*solid* joint-box compounds," but does not remove them, as they do "not keep the tapes impregnated." Vernier insists upon keeping the tapes impregnated and (p. 656):

> "* * * for this reason an *oil* filling should in such cases be used."

Then, in describing his Fig. 15 (p. 657), Vernier says (656) that

> "This lead sleeve is then filled in with the insulating composition, either *an oil or a viscous joint-box compound*—preferably the latter—which can *run* into the tubes and all parts of the joint box."

And (pp. 656, 658):

> "Such a compound must be viscous and of about the *consistency of thick cream at ordinary temperatures*. When heated it should run as freely as heated oil, so as to penetrate all crevices, and it must retain these features throughout its life; * * *."

Compare this with the "compound, normally of the consistency of vaseline or jelly," urged and held to infringe in the Sixth Circuit. Both compounds will continue to permeate the insulating tapes (R. p. 204, Q. 50).

In the discussion following the reading of the Vernier paper, Harris, speaking of the joint construction *he had used* on 30,000 volt cables says (pp. 691-2):

> "Perhaps I might mention the type of joint we have recently introduced for extra-high tension work (30,000 volts). It consists, essentially, of impregnated paper cylinders to insulate the ferrules and of a lead sleeve plumbed to the sheath of the cable. The sleeve is filled with compound of the consistency of vaseline when cold," (compare with the compound alleged and held to infringe in the Sixth Circuit case —"normally of the consistency of vaseline"), "but very liquid when hot."

That the oil in the joint would migrate into the cable was clearly recognized, Mr. Hogg saying (p. 694):

> "*As regards the joint compound leaking above the copper core of the cable*, I should prefer to have

> the strand impregnated throughout with a similar compound to that used as joint-filling compound."

Going back to Vernier's illustration of his cable joint boxes on pages 654 and 657, note the dome shaped form of sleeve shown in Fig. 13 on page 654; and the differently dome shaped sleeve of Fig. 16 on page 657 and compare the dome structure with that of the Metropolitan Device Corporation's sleeves (said to have been made under the patent in suit) sold to the New Jersey companies in 1926 shown at page 469. Compare them both in side view and in section.

There are several references, in the course of the Vernier paper, to filling the joint sleeves under a vacuum. This is explained in detail in the article on "Vacuum Method of Filling Cable Joints" in *The Electrician* of March 24, 1911 (p. 722). This article relates to 30,000 volt cables in Berlin and in England. In the course of this article it is stated that the oil, used for filling the sleeve (p. 722)

> "is exactly the same oil which is used to impregnate the cable, and *at ordinary temperatures is not unlike vaseline in consistency*, but pours as freely as a liquid when heated."

Certainly the knowledge of a light oil, or a viscous compound which never sets (such as was alleged and held to infringe in the Sixth Circuit case) was fully known to the art prior to Torchio. And it was known to Torchio, too, as we shall now see.

Torchio's prior knowledge:

Of course, every patentee is *presumed* to know the state

of the art as it existed prior to his work; the character of his work is judged in the light of that prior art whether or not known to him.

But it is particularly interesting in this case to pause to see the things which were, in fact, known to Torchio, and the course of his work. This appears from testimony and from reports and correspondence, none of which (except one report, as will be indicated) were in the record in the Sixth Circuit case.

In 1914 Torchio was the chief engineer of the New York Edison Company. He was abroad in 1914 and there collected information in connection with high tension cables. On his return he embodied this information in a report at some time prior to July 3, 1914 (p. 123; 507).

In that report (p. 507) it appears that when Torchio was in Berlin he inspected the 30,000 volt cable system in which, in a year and a half, there had been 15 joint failures "the greater number were in old joints made without the vacuum process. With the vacuum process joints they had only a few faults, attributed to defective workmanship." So the new joint system was efficient and working well. The joints had lead sleeves made in three parts "secured to each other and to the lead sheeting by means of wiped joints" (p. 508), and

> *"The compound at normal temperature is semi-liquid and is similar to the compound used for saturation of cables."*

So, before doing any of the work resulting in the patent in suit, *Torchio knew of the use of fluid compounds in joint boxes.*

He knew of it also from a report made to him by Rabe, one of his associates, early in August, 1914. It was arranged in July that Rabe should go to Boston to inspect the joints in the high tension underground cable system there (see letters to Torchio, pp. 507, 511); he went to Boston and made a written report (p. 512), which he handed to Torchio; and he and Woodrow talked it over with Torchio early in August, 1914 (pp. 127-8; 188). As appears from the report, some of the cable was laid in ducts (with manholes about 400 feet apart) and some in trenches, and was to carry from 13,000 to 25,000 volts; it was a three conductor cable, paper wrapped, and sheathed with lead, as shown in Rabe's sketch accompanying his report (p. 518 A). In the English joint the joint box was made of a brass casting with two filler holes, and was vacuum filled with the insulating material; and (p. 516):

> "*Compound used by British Company at ordinary temperature is about the viscosity of molasses.* During the process of joint making it is heated by a helper over a coke fire to a temperature of 300° F. and allowed to cool to 170° before filling into a joint, thermometers being used to hold to this rule as close as practical."

—the regular procedure in the vacuum filling process. The "viscosity of molasses" is certainly a thinner compound than one of "a consistency of vaseline or jelly" alleged, and found, to be an infringement in the Sixth Circuit case.

Torchio was thus fully instructed as to the use of fluid filling materials. He did *not* discover them. It was only after trying hard compounds which would not run (p. 523, this being the only Torchio letter in the Sixth Circuit case) that he decided to use the old soft compounds already known

to him and, in that connection, to use a gauze and a "wick" (which enter into his patent in suit, but respondent does not use them).

Thus, on February 23, 1915 (not 1914, the latter date appearing in the opinion of the Court of Appeals, at p. 771, by typographical error), he again wrote, saying (p. 529):

> "Two weeks ago"—which would mean about about February 9—"I mentioned to you and Mr. McCoy the hopes I entertained of having reached the solution by a form of joint which consists of making the splice by insulating it in the usual way, but wrapping around its outside insulating jacket *a copper gauze*, which is carefully held at the ends under the edges of the lead sheath, carefully pressed down, and by *a lamp wick:* the splice so made is then enclosed in a special sleeve, which is then filled under vacuum with *a very light oil which penetrates and fills not only the insulation and voids in the splice, but also the disturbed ends of the cables.* * * *
>
> "*With cables not operating at such high potentials as the New Haven service requires,* it may still be desirable to adopt the same principle of filling the splice with a light oil and providing means for retaining the oil therein and *preventing it from oozing out* if perchance the annular space around the insulation in the splice is drained off, and does not retain in full, the light oil. For this purpose I have also tested two splices made without the metal armor and wick, but *having the light oil in the outer space replaced by a heavy oil.*"

The added gauze was what was represented to be the great thing. It figures in the Metropolitan Device Corporation advertisement of October 31, 1925 (p. 532); that Corporation's advertisement of April 16, 1927 states (p. 730) that

> "The big difference between this and other joints is the Electrostatic Shield (a Murray patent)* supplied only with the Metropolitan joint."

And on May 23, 1927, the Metropolitan Company writes to the Brooklyn Edison (p. 531):

> "A COPPER GAUZE STOCKING—the patented feature is what distinguishes the Metrolatum Filled High Tension Cable Joint."

There is nothing in the Torchio correspondence even referring to an enlarged sleeve, or a separate reservoir for holding oil—just as there is nothing in the correspondence as to the use of a light oil *without* a gauze stocking or without a heavier oil. The light oil or compound was something known to him as having been used by others before him; *and an enlarged sleeve was also known to him.*

Woodrow testifies as to a reservoir (p. 172) that

> "we discussed"—he and Torchio—"that a number of times, because others had done it, and we wanted to get as much reservoir capacity as we could get."

The statement that "others had done it," to the knowledge of Torchio and Woodrow, was based on the drawing of a British domed joint sleeve with spaces projecting upward from the main body of the sleeve (p. 734) which Torchio had before him in 1914 (p. 251). That drawing should be compared with petitioner's drawing (p. 469) purporting to show a domed sleeve under the Torchio patent, and with Figs. 13 and 16 of the Vernier paper (pp. 654, 657).

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*Mr. Murray had owned the Torchio patent up to February 11 of that year (p. 281).

The respondent's joints:

The instant suit is concerned only with the electric cable joints of respondent described in two articles (R. pp. 51-59; 120-22; 392-401), prepared in June and November, 1927, by engineers employed by respondent (R. pp. 392, 397) who had developed this between 1922 and 1927 (R. pp. 393, 397).

On May 23, 1927, Metropolitan Device Corporation wrote to respondent asking it to test the patent joint, and said:

> "A COPPER GAUZE STOCKING the patented feature is what distinguishes the Metrolatum Filled High Tension Cable Joint. This STOCKING acts as an electrostatic shield and distributes equally the electrical stresses around the conductors." (R. pp. 386-7).

This letter when received by respondent was referred to its engineers in charge of its distribution system (R. pp. 153-4).

Other than the notification that the copper gauze was the patented feature of petitioner's joint, respondent was in no way notified by petitioner, or by its predecessors in title, that they claimed a patent upon cable joints, or that respondent's joints were or might be an infringement of any patent owned or held by them. Respondent has never used the copper gauze in any joints made or used by it (R. p. 745).

Respondent's reservoir as shown in the illustrations (R. pp. 401, 404, 533) and as described in the text of the article (R. pp. 399, 401), is a weighted, collapsible reservoir, in no way identified with the sleeve of the joint, installed in manholes and supported by a bracket in an un-

used upper corner of the manhole, connected to several joints by copper tubing equipped with reducers, petcocks, etc., and adapted to apply pressure to the oil. No two joints on feeders to the same substation are piped to a common reservoir.

Respondent's collapsible, multiple-connected reservoir is different in character, function and use from the receptacle of the patent, and the Court so found (R. p. 748).

Summary of Argument

The patent is invalid, because completely anticipated by the prior patents and publications and the prior knowledge with reference to high tension electric cable systems and joints in them.

1. The patentee of the patent in suit did not create lead-sheathed cables for high tension transmission systems, nor did he create joints, in man-holes, between the conductors in adjoining lengths of such cables. Nor did he devise the enclosure of each such joint, wrapped with pervious tape, in a lead sleeve hermetically sealed, at each end, to the lead sheath of the adjoining lengths of cable. Nor did he originate the filling of each such sleeve with an insulating compound of some kind.

It is admitted by the petitioner that all of that was old and well known and in use.

The only elements of the combination, claimed in claim 4 in issue, not admitted to be old in that environment, are "a receptacle communicating with the interior of said sleeve" to hold an additional supply of the insulating fluid, and the use of an insulating compound, in the sleeve, fluid

enough to flow and permeate the "pervious insulating material enclosing said joint."

The Circuit Court of Appeals for the Sixth Circuit had held, in a previous case and on the evidence before it, that the insulating fluid was new with the patentee of the patent in suit. It did not discuss the "receptacle" at all, and made no finding as to it.

The Circuit Court of Appeals for the Second Circuit, in the present case and on evidence very different from that in the Sixth Circuit case, held that the fluid insulating material in the sleeve was old, and that the addition of a receptacle to the combination of claim 4 did not render that combination patentable.

The Circuit Court of Appeals for the Second Circuit was clearly right, upon the evidence before it.

Filling the sleeve, which enclosed the wrapped joint, with a compound or an oil fluid at all working temperatures was definitely old and a part of the knowledge possessed by prior workers on transmission systems. It was described in a published article by de Gelder as having been used in the Amsterdam cable system. It was described in detail in a published article by Vernier, and in the published discussion on that article. It was, prior to the alleged invention by the patentee of the patent in suit, known to that patentee to have been used in the high tension cable transmission joints in Berlin and Boston.

2. As to the "receptacle," that is described in the patent in suit as being merely a space, additional to that in the ordinary sleeve, for the insulating fluid, and, as the patent states, it may be a separate receptacle connected

with the sleeve or an enlargement of the upper side of the sleeve itself. It makes no difference which it is.

Such an additional space for the insulating fluid was old, as described by Vernier in his article. It was, prior to the alleged invention by the patentee of the patent in suit, known by the patentee to have been used by others.

Moreover, there can be nothing patentable in enlarging a storage space.

3. The patent in suit sets forth nothing new as to keeping the insulating wrappings impregnated with oil. The prior disclosures of Vernier and others fully describe all that the patentee of the patent in suit does. In this connection the "disclaimer" filed by the assignee adds nothing to the situation. It was filed in view of the prior art disclosed in the litigation in the Sixth Circuit, and does not serve to distinguish from the very different prior art in the present case.

4. The respondent has taken nothing from the patent in suit. It has not used an additional metallic-gauze sleeve, nor a wick on the outside of that gauze, nor does it use a heavier fluid to "imprison" the lighter fluid in the wrappings—all of which things are claimed in the patent in suit.

The respondent uses only the old forms of joints in cable systems, and the old fluid in the sleeves of those joints. It has departed from the old system only in that it has devised a new form and kind of reservoir which is not a mere enlargement of the sleeve (as is the case in the patent in suit) but has additional and highly important functions. In doing this it departed from, not followed, the teachings of the patent.

POINT I

The use of an insulating oil or liquid, fluid at low temperature, in a cable joint construction like that covered by claim 4 of the patent in suit, was old and well known.

The petitioner admits that Torchio, the patentee of the patent in suit, made no change in electric cable constructions; was not the creator of joints beween the adjoining sections of the conductors of high tension transmission cables; was not the first to use wrappings, pervious to oil, on the conductors at the joints; and was not the first to fill the sleeve, enclosing the joint, with an insulating material of some sort (p. 2, *supra*).

The Court of Appeals for the Sixth Circuit, however, in a case with which the present respondent was not connected, had held, on the record before it, that the patentee of the patent in suit was the first to fill the sleeve, enclosing the joint, with a *liquid* insulating compound in place of one not soft enough to flow and that this was "somewhat beyond the skill of an expert and amounted to patentable invention" (p. 3, *supra*).

In the present case, the Courts of the Second Circuit, found that the record in the Sixth Circuit had not contained the evidence here relied upon, nor "any equivalent or like evidence upon the basis of which" findings such as those made here could have been made (p. 4, *supra*). Upon such new evidence the Courts in the Second Circuit held that, in such a joint construction as is here under consideration, the use of oil, or other insulating medium, fluid at low temperatures was old; and held the claim in issue invalid. Such a conclusion is not only justified, but is necessary, upon the present record.

There is no question but that oil has long been known and used as an electric insulating medium. Geipel disclosed its use, as early as 1894, as the proper fluid to use in a joint box in connection with conductors wrapped with paper or jute or other pervious wrappings (p. 5, *supra*). Geipel does not state *what kind* of oil to use. Nor does the patent in suit; it states merely that there is to be used "any suitable oil or other liquid which is fluid at low temperature" (p. 255, lines 93-96). It is not questioned that any kind of oil is thus fluid.

There was used, in the City of Amsterdam, a "cable system for light and power" in which the ends of the conductors in contiguous lengths of cables were joined in the same way and by the same form of joint as is disclosed in the patent in suit. And the lead sleeve enclosing the joint was filled with "the same oil" which was used "for impregnating the cable" which was "a rather thin liquid, oily, and not too resinous mass" and was "thin" at even the temperature of 59° Fahrenheit which is much below the temperature at which cables are operated (p. 7, *supra*). This, obviously, was a "suitable oil or other liquid which is fluid at low temperature and preferably of a character which will combine with the material used in the body of the cable for permeating or imbedding the insulated wrappings" (Patent in suit, p. 255, lines 93-98).

A use in Amsterdam, being in a foreign country, does not, in itself, affect a United States patent. But a publication describing it does.* This use in Amsterdam was de-

* "* * * But no patent shall be granted on an application for patent for an invention or discovery or a design which had been patented or described in a printed publication in this or any foreign country more than two years before the date of the actual filing of the application in this country, or which had been in public use or on sale in this country for more than two years prior to such filing. (R. S. Sec. 4887; 35 U. S. C., Sec. 32.)"

scribed by de Gelder in a publication of 1907 (p. 5, *supra*). Petitioner does not deny that it was published and open to the public, but complains that the publication had no wide circulation and that the article was written as a "thesis." The reason *why* it was written is obviously immaterial. The extent of circulation of a publication is not what determines its applicability, but that it *is* a publication and available to the public. Petitioner objects, also, that, though de Gelder described the cables in Amsterdam as "high tension cables for 3,000 volts" (p. 6, *supra*), this is not what the patentee of the patent in suit referred to as "high tension" and that, to be "high tension" the electrical pressure should be some 13,000 or 15,000 volts, as its witness said (R. p. 64). We need not, however, pause to argue that position: for it is so clear that the same joint was, long before the date of alleged invention here, used with cables which admittedly were "high tension," as we shall now see.

Vernier dealt with this whole subject comprehensively and in detail, in a paper written by him and published in 1911 in a leading English technical journal; also his paper was summarized in another technical journal in the same year, and in an American Handbook for Electrical Engineers which, as petitioner's witness testified, is "a standard work of authority" (p. 11, *supra*).

Vernier was dealing with admittedly "high tension" transmission cables, carrying up to 20,000 volts. He described in detail just how the joints are made (pp. 11-17, *supra*), which is the way of the patent in suit. His lead sleeve for enclosing the joint was hermetically joined to the lead sheath of the cable (pp. 13-14, *supra*) just as in the patent in suit. He pointed out that, when the insulating wrap-

pings on the conductors at the ends of the cable are cut to bare the conductors in order to make a joint, some of the impregnating oils in the wrappings will run out (p. 16, *supra*); this is what is described in the patent in suit and there called "bleeding" (R. p. 256, lines 54-61). He insisted that the insulating tape wrappings at the joints should be, and should be maintained, thoroughly impregnated and free from air pockets (p. 14, *supra*) and that, in order to fill all crevices and keep the wrappings impregnated, "an oil filling" or a viscous compound "of about the consistency of thick cream at ordinary temperature" should be used in the sleeve enclosing the joint (pp. 16-17, *supra*). Note that the compound "of about the consistency of thick cream" is the compound which the petitioner urged, and the Court of Appeals of the Sixth Circuit found, to infringe the patent in suit, it there being described as a compound "normally of the consistency of vaseline" (p. 3, *supra*).

Moreover, Vernier as well as other prior workers, realized that a cable "breathed" under the inevitable changes in temperature (R. p. 205, Q. 54). Vernier had described such breathing as assisting in keeping "the insulating tapes constantly impregnated" (p. 15, *supra*). Lemp had disclosed the use of a reservoir of oil so as "to allow for expansion under increase of temperature" in a transformer (p. 5, *supra*). De Gelder had described the contraction and expansion of the oil in a cable (p. 8, *supra*). This "breathing" of the oil in a cable was observed by the Consolidated Company in Baltimore (p. 10, *supra*).

Vernier pointed out that some engineers preferred to use solid compounds in the sleeve, and others preferred oil, or compounds which would readily flow (R. p. 655). And, to meet the criticisms of those engineers who felt that an

oil would leak out and leave the tapes dry, he said that they might use a viscous compound "which never sets" or that means be employed to prevent leakage (R. p. 656). There were, and long have been and are even now, two schools of thought about the materials to be used for filling the sleeve enclosing the joint. It appeared from de Gelder's publication of 1907 that, in the Amsterdam cable system, the sleeves of the joints installed by the Germans were filled with a thick compound, while those installed by the English had a thin oil (p. 7, *supra*), but de Gelder preferred the oil. A number of engineers still prefer the heavy compounds and they are used in many systems in this country (R. p. 184).

Vernier, in recognizing the existence of these two schools of thought, made a concession to those prejudiced against the use of oil, *just as did Torchio in his patent in suit*. Each suggested means for preventing leakage of the oil. In the patent in suit (p. 256, lines 9-22) it is suggested that, after the wrappings at the joint are permeated with the light oil, the excess of such oil be drawn out of the sleeve and a dense compound be substituted "as a means of imprisoning the lighter fluid already in the interstices of the filling and wrappings of the joint."

But the patentee of the patent in suit expressed a preference for the use of the oil; just as Vernier had previously expressed the same preference (p. 16, *supra*).

Petitioner's criticisms, on page 10 and 11 of its brief, of the opinion of the Circuit Court of Appeals in this case as to the Vernier publication are entirely unfounded, as a reading of that opinion (R. pp. 769-772) will show.

Vernier completely disclosed all that the patentee of the patent in suit later disclosed as to the material to be used in filling the sleeves of the joints.

Vernier's paper constituted a very practical, as distinguished from theoretical, discussion of cable joints and it was read before very practical men—the members of the Institution of Electrical Engineers. In the discussion following the reading of his paper, various engineers recounted their own practical experiences. One of them described (p. 17, *supra*) his own experience with cable joints then "recently introduced for extra-high tension work (30,000 volts)," in which the lead sleeves were "filled with compound of the consistency of vaseline when cold"—exactly what the petitioner urged in the Sixth Circuit to be an infringement of the patent in suit, and what the Court there found to be an infringement, a compound "normally of the consistency of vaseline."

And such compounds, within the scope of the patent in suit, were in use in cables, to the knowledge of the patentee before he made his alleged invention—so he could not have been the inventor of them. He had seen, in the 30,000 volt cable system in Germany, joints in which the enclosing lead sleeve was filled with a compound which, as stated in his report (p. 19, *supra*).

> "At normal temperature is semi-liquid and is similar to the compound used for saturation of the cables."

And he knew (p. 20, *supra*) of the 25,000 volt cable system in Boston in which the joint box was filled with a compound which "at ordinary temperature is about the viscosity of molasses," which, obviously, is even thinner than a compound of "a consistency of vaseline or jelly" urged and found to be an infringement in the Sixth Circuit.

The only thing which the patentee of the patent in suit

added to the already known joint construction was the metallic gauze sleeve marked 13 in Fig. 1 of the patent (R. p. 254) described at lines 28 to 33 of page 256 and covered by claims 1, 2 and 6; a fibrous wrapping ("lamp wick") on the outside of that gauze described at lines 38 to 41 of page 256 and covered by claim 7; and the use of a heavy oil to keep the light oil from leaking out, described in the patent at lines 9-22 of page 256 and covered by claim 5. None of those things does the respondent use. The gauze sleeve was advertised as the thing, and the only thing, that characterized the patented joint (pp. 21-22, *supra*).

We submit that the patentee of the patent in suit was not the first to disclose or use a sleeve filling, in cable joints, thin enough to flow. There was no novelty, whatever, in that.

POINT II

The use of a reservoir of oil was old

It is important, first, to have in mind just what is the reservoir of the patent in suit. It is merely an enlargement of the lead sleeve which encloses the joint.

In Fig. 1 of the patent (R. p. 254) the sleeve 8, itself, is of the same general outline as the wrapped joint which it encloses, but it has a protuberance projecting upward, this being called a reservoir, at line 92 of page 1 of the patent. Then, at lines 1 to 8 of page 2 of the patent it is stated:

> "Instead of making the reservoir 10 in the form of a separate chamber communicating with the

> sleeve, as shown in Fig. 1, I may dispose the sleeve eccentrically on the joint, so that the greatest clearance will be uppermost, as shown at 12 in Fig. 6. In this way I produce an additional holding space for the oil within the sleeve itself."

So the "additional holding space for the oil within the sleeve itself" is one form of the reservoir, and is described to be, and is, the full equivalent of the reservoir "in the form of a separate chamber." Each is a mere enlargement of the sleeve. This is admitted by petitioner's witness who testified (R. bottom p. 68) that "in Fig. 6 he (Torchio) has built his reservoir into his joint,"; and (R. p. 70, XQ. 100), "Torchio treats the two alike for the purposes of reserve supply."

Claim 4, the one in issue, is the only claim of the patent which includes a reservoir of any form. Clearly that reservoir is *either* the separate chamber of Fig. 1, or the enlargement of the sleeve as shown in Fig. 6.

Such a reservoir was definitely old.

Vernier shows such an enlargement in his Fig. 13 (R. p. 654) and Fig. 16 (R. p. 657), in each of which figures the left hand view shows the construction when looked at from the side, and the right hand view shows the construction when looked at from the end. The "dome" is perfectly apparent. It is the same dome shaped structure which is shown in Fig. 6 of the patent in suit, and described in that patent as being a reservoir, as we have just seen.

Vernier does not describe it as a reservoir. The showing was so clear that no verbal description was necessary. Description, for the purposes of anticipation, can be by drawings alone, as well as by words (*In re Bager*, 47 F. (2d) 951, 953).

And Torchio knew that such domed joint sleeves were old before he took up his work. He had before him (p. 22, *supra*), the drawing of such a British sleeve, that drawing being on page 734 of the Record. The illustration at the top of the sheet is a side view; the middle drawing on the lower line of illustrations, clearly shows the dome in end view.

No new thought was involved in supplying additional holding space for the oil. That was done wherever oil was to be used under circumstances such that there would be breathing, or when the oil was to be taken up by pervious wrappings in cables.

Thus, Lemp showed and described (p. 5, *supra*) an additional holding space in connection with his oil insulated transformers—the reservoir J in the illustration on page 614.

And the Consolidated Gas Company, in Baltimore, used an oil reservoir for keeping its cable wrappings impregnated (pp. 9-10, *supra*).

Even apart from the fact that reservoirs were old in connection with cables, there is nothing patentable in supplying an enlarged receptacle or container for the oil. The same question came up in *Westinghouse Electric & Mfg. Co.* v. *Pittsburgh Transformer Co.*, 10 F. (2d) 593. That case related to the oil used in the casing of a transformer to carry away the heat developed in the action of the transformer. The patentee devised "a self-cooling transformer of considerably greater capacity than any of its predecessors" by adding to the tank a number of rectangular oil containers communicating with the top and bottom of the tank and thus increased the capacity of the oil receptacle. The Court held (p. 596) that

> "True, a larger transformer and greater radiating space gave more power, but mere increase in the size of parts of a device of well known functions has never been held to be patentable. See *Coffield v. Sunny Line Appliance, Inc.*, C. C. A. (6 Ct.), 297 F. 609, and cases cited; *Gates Iron Works v. Overland Gold Mining Co.*, 147 F. 700, 78 C. C. A. 88 (8 Ct.)."

And the Court of Appeals for the Seventh Circuit in *R. Hershel Mfg. Co. v. Great States Corporation*, 26 F. (2d) 362, 363, held that there was nothing new or patentable in "a space in the hub, between the end of the axle and the outer wall of the hub, *to constitute a reservoir for oil*, which is supplied through a small hole in the center of the outer hub wall."

It is not invention "to increase the size or strength of the elements of an existing combination" (*Murray Mfg. Co. v. Sumner Iron Works*, 300 Fed. 911, 912 (C. C. A. 9)).

Claim 4 is completely invalid.

POINT III

The patent in suit sets forth nothing new about keeping the insulating wrappings impregnated.

The patent (R. p. 255) at lines 92 to 98 states that the "insulating oil or other liquid which is fluid at low temperature" is "of a character which will combine with the material used in the body of the cable for permeating or embedding the insulating wrappings." Geipel's and de Gelder's oil was of precisely that character (p. 7, *supra*); as, also, was that used in connection with the Baltimore Cables

and maintained in a "pot-head" reservoir (p. 10, *supra*), and that described in the discussion of the Vernier article (p. 15, *supra*), and that used in the Boston cable joints (p. 19, *supra*).

Then the patent proceeds (lines 101-112) to say that the oil in the reservoir serves to supply any deficiency in the sleeve caused by absorption and breathing of the cable or the disturbance of the conductors carrying sudden overload currents, "*so that the joint insulation is not only thoroughly permeated at the outset, but continues submerged in a bath of insulating oil.*"

Also, (p. 256, lines 30-36) "it is to be observed that the insulating fluid not only permeates the wrappings and fillings at the joint, but also percolates into the insulation at the cable ends exposed in order to make the joint. This is of practical importance, because it often happens that during the making of the joint, the exposure of said ends permits of the permeating liquids used in the original manufacture of the cable to 'bleed' or run out, and a consequent failure of insulation at these points ensues."

All of this was fully disclosed by Vernier, who described "the impregnating oils of the cables running out when the cable is cut" (p. 16, *supra*)—the "bleeding" that the patent in suit speaks of. And Vernier insists, over and over again, that the oil filling in the sleeve shall "keep the insulating tapes constantly impregnated" (p. 15, *supra*), contrasting this with "a solid compound which does not keep the tapes impregnated" (p. 16, *supra*) and he insists that all air spaces should be avoided (p. 14, *supra*).

The claim in issue specifies "a body of pervious insulating material enclosing said joint" and "an insulating fluid adapted to permeate said pervious body."

Precisely what Vernier had previously described.

A so-called "disclaimer" was filed in connection with the patent in suit in February, 1927 (R. p. 257), that being long before the complaint in the present suit was filed, and four days before the trial in the District Court in the Sixth Circuit (R. p. 370). It was, accordingly, filed in view of and to differentiate from the prior art cited in the answer in the Sixth Circuit case. It might have been effective to distinguish from the prior art there relied on; but, in view of the very different prior art in the present case, it does not help the petitioner here.

The first sentence of the disclaimer (R. p. 257) describes exactly the cables of Vernier and the cables used by defendant prior to the alleged invention of the patent in suit. The second sentence describes an insulating liquid which is fluid at ordinary working temperatures of the cables (this describes only the de Gelder and Vernier oil, and the fluid compound used, and known to Torchio to have been used, in Berlin and Boston prior to his alleged invention), "and in quantity sufficient to supply at all times the demands made by the cable in use, and by the joint."

This disclaimer does not represent any statement of the patentee, Torchio, but the after thoughts of his assignee, Murray, formulated in view of the exigencies of the litigation in the Sixth Circuit. The *patentee* had never disclosed or asserted that the quantity of fluid was to be "sufficient to supply at all times the demands made by the cable in use." His patent, as we have seen, asserts merely that the oil permeates the wrappings at the joints and also compensates for the "bleeding" of "the cable ends exposed in order to make the joint."

And a requirement that there shall be a quantity of the insulating fluid "sufficient to supply at all times the demands made by the cable in use" is meaningless, in any event. Petitioner's witness admits (R. p. 71) that the "joints in the Torchio patent are filled as often as they need it" and Torchio "does not have to use enough oil to take care of the cable throughout its life." That means merely that, if a large quantity of oil is provided, one does not have to fill the sleeve so often; if a smaller quantity is used, fill more often. The disclaimer, thus, does not define quantity.

The petitioner's present idea that the patent contemplates that the oil shall pass from the joint back along the cable is not only not disclosed in the patent, but is contrary to the teachings of the patentee. It was not until 1925 (nine years after the patent in suit issued) that he filed an application for a patent on *that* idea (R. p. 727, lines 5-14).

It was, however, known prior to the alleged invention of the patent in suit that the oil in the sleeve of the joint would migrate into the cable. That was mentioned in the discussion in the Vernier publication (p. 17, *supra*).

And, if the Torchio "liquid which is fluid at ordinary temperatures" will not only impregnate the insulating wrappings at the joint, and compensate for the "bleeding" at the cut ends of the cables but also migrate along the cable, the similar fluids described by de Gelder and Vernier will inevitably do the same,—and such impregnating and migrating of oil into the cable occurred, and was known to occur in Baltimore (p. 10, *supra*).

There is nothing whatever that is new in the patent in suit.

POINT IV

Respondent has taken nothing from the patent in suit

From the foregoing it is apparent that anyone was free, prior to the patent in suit and now, to use the old form of cable joint described by de Gelder and Vernier—the form which the respondent is using and which it had used long before the alleged invention of the patent in suit (Woodrow, R. pp. 178-180).

Also, anyone was and is free, to use, as a filling for the sleeve enclosing the joint, an insulating oil or compound which is fluid and never "sets," this being fully described and in use, prior to Torchio's time.

And anyone is free to use an additional holding space for the oil, either as an enlargement of the sleeve itself or as a separate receptacle communicating with the sleeve.

The respondent, in using these things, did only what was open to it to do. It has not taken, from the patent, the metallic gauze sleeve on the outside of the joint wrapping nor the lamp wick on the outside of the gauze, nor the light oil in the joint wrappings surrounded by a heavier oil to prevent leakage of the light oil into the cable or elsewhere. All of those are claimed features of the patent.

Nor has it taken the Torchio reservoir. As was found by the District Court (R. p. 748), the reservoir used by respondent

> "is in construction, character and use substantially different from that of the receptacle or reservoir of claim 4 of the patent in suit, in that defendant's reservoir is a weighted collapsible, bellows type,

variable volume, multiple connected reservoir; whereas the receptacle or reservoir of the patent in suit is rigid, part of the enclosing sleeve of the joint and incapable of use except with the joint of which it is a part. It is physically impossible to employ or use the receptacle or reservoir of the patent in suit as a substitute for defendant's reservoir or as defendant's reservoir is employed or used."

The respondent's system is the system which was known and used prior to Torchio, with improvements, such as the manhole reservoir adapted to supply oil to the joints and cable under pressure by means and upon principles entirely different from anything taught by the patent in suit.

Conclusion

We submit, upon the foregoing, that the patent in suit is invalid and that the decree below, dismissing the complaint, was correct.

Respectfully submitted,

CHARLES NEAVE,
JOHN D. MONROE,
Of Counsel for Respondent.

March 3, 1934.